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ECONOMIC BOUNDARIES? LATE ANTIQUITY AND EARLY ISLAM

BY

MICHAEL G. MORONY*

Abstract

The Mediterranean economy was retracting from the mid-sixth century while the Sasanian economy was expanding. Six trends are identified during Late Antiquity that extended into the Islamic period: (1) the development and spread of large estates with tenant labor, (2) the monetization of the economy, (3) the development and spread of irrigated agriculture, (4) the revival of mining, (5) the emergence of merchant diasporas, and (6) the domination of Indian Ocean commerce by Persian shipping. It is argued that these trends were strongest in Sasanian territory where the economic system identified as “Islamic” originated.

À partir du milieu du sixième siècle l'économie méditerranéenne connaissait une régression alors que celle de l'Empire sasanide était en plein essor. Durant l'époque de l'Antiquité tardive et au cours de la période islamique, six tendances peuvent être relevées: 1) le développement et la diffusion des grands domaines avec fermiers à bail; (2) la monétarisation de l'économie; (3) l'extension de l'agriculture irriguée; (4) la revivification du secteur minier; (5) l'émergence des diasporas commerciales; et (6) la domination commerciale de la marine perse dans l'Océan indien. Selon notre analyse, ces tendances étaient plus fortement ressenties en territoire sasanide où le système économique dit “islamique” connut le jour.

Keywords: agriculture, commerce, monetization, demography, urban change

In order to understand the economic history of the early Islamic period it is necessary to understand what preceded it. Was there a difference between the economy(ies) associated with Late Antiquity and that (those) associated with the early Islamic period in western Asia and the Mediterranean world? If so, what was that difference, when and where did it occur, and how is it to be explained?

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The answers to such questions involve identifying chronological and geographical boundaries in economic history, but it is better to think in terms of dynamic change than to make static comparisons. It is also best to deal with particular sectors of the economy rather than with the economy as a whole.

Of the various sectors of economic life it seems best to focus primarily on those related to production, since that is fundamental to everything else. Nevertheless, there will be some attention to economic exchange here. With respect to economic production the main difference between the world of Late Antiquity and that of early Islam appears to be, in the latter case, more intensive and extensive exploitation of mineral and water resources, of land for agriculture and for domestic animals, of animal and human labor, increased specialization in manufacturing and services, and a greater commercialization of production. This is basically the difference between an expanding economy and a stable or retracting economy, and it would seem that some of these changes (expansion of irrigated agriculture and mining) were already underway in Sasanian territories at the end of Late Antiquity. In fact, several long-term trends, that have their roots in Late Antiquity, turn out to have been more important than abrupt changes for the emerging economy associated with the early Islamic period.

This situation depends upon how one defines the economy during Late Antiquity. What evidence is there for a stable or retracting economy? Was the economy uniform throughout the period and across the Mediterranean and western Asia, or should we look for chronological changes and regional differences? The received view of Late Antiquity as a period of economic retraction after the crisis of the third century goes back to A. H. M. Jones (1964: 1038-48). Recent revisionist syntheses offered by Whittaker and Garnsey, Wickham, Ward-Perkins, Walmsley, Morrisson and Sodini, and Banaji have largely challenged this view. These studies are more concerned with issues of economic expansion and contraction than with the nature of the economy itself.

Although it makes logical sense to see the controls instituted by the late Roman government as attempts to deal with the symptoms of a contracting economy, Whittaker and Garnsey (1998: 277-83) tend to explain matters in terms of fiscal issues, at least for the fourth century, and minimize any decline in agricultural production due to the abandonment of land or to a shortage of manpower, although they do not deny that land was deserted.¹ The change they note from short-term contracts to quasi-permanent leases is seen as a way of securing agricultural production and possibly as an improvement in management

¹ Their statement that there is as much evidence for the replacement of manpower as there is for its shortage could be taken to mean that the availability of labor was an issue.

(Whittaker and Garnsey 1998: 278, 281, 283). They see evidence of economic growth in the export of Tunisian olive oil, fish sauce, and pottery to eastern and western markets throughout the fourth and fifth centuries, although they admit that North Africa may have been exceptional (Whittaker and Garnsey 1998: 285-86). They also argue that archaeological evidence for the expansion of agriculture and rural prosperity is the most convincing argument against any general decline in agrarian production. This consists of evidence for flourishing agriculture in Syria, an increase in villa sites in North Africa through the fourth century, a general decline in small rural sites and an increase in the number of large farms and villages in Italy and the western provinces, and growth in the Danube provinces during the fourth century (Whittaker and Garnsey 1998: 285-87).²

THE DEVELOPMENT AND SPREAD OF LARGE ESTATES WITH TENANT LABOR

Beginning in the fourth century rural estates belonging to the imperial properties, the Church, and private persons appear to have steadily increased in size (Garnsey and Whittaker 1998: 322), while independent farmers disappeared and were replaced by tenants on large estates. But Whittaker and Garnsey (1998: 287-90, 296) argue that the increasing status of *coloni* compared to that of slaves was more a matter of management than of manpower. The large estates, with their own craftsmen and commercial agents and producing for their own needs were increasingly outside the market economy, but they were not entirely self-sufficient because the rich landlords sold some of their surplus on the market and bought expensive imports (Garnsey and Whittaker 1998: 323, 334-35, 337).

This trend toward large estates needs to be qualified by the survival of small, independent farms in the limestone hills of northern Syria, in the Hawran, and in Palestine. Kennedy's (1985a: 161) assertion that there is evidence for the growth of large estates in the late sixth century in the limestone hills was based on the work of Tchalenko (1953-58). According to Foss (1995: 220), the more recent work of Tate (1992) shows that the farmers were independent landowners, that there is little evidence for *coloni* or large estates and little specialization in agricultural production in this region. Nevertheless, the characteristics of a monastic site at Qasr al-Banat that are described in an inscription dated to 588 indicate that it was a fairly large estate. The monastery owned two kinds of land: fertile land on the plain of Dana for grain cultivation and land on the

² Wealthy villages with agricultural presses began to develop in Cilicia from the fourth century. See Cécile Morrisson and Jean-Pierre Sodini (2002: 176).

limestone hills, probably for olives. Tchalenko suggested that the grain was produced for local consumption and the olive oil for export. Kennedy (1985a: 161) understands the site as a self-sufficient estate and suggests that monoculture (of olives) may have been moving toward greater agricultural diversity.

Villeneuve (1985: 113, 115-16) argued on the basis of the size and location of houses in the Hawran that there is no evidence of villas or an estate economy there. The rural economy was organized around villages, but some people were richer than others. According to Watson, the countryside of Byzantine Jordan (the province of Arabia) was dotted with farmsteads (2001: 480), but the sixth-century Greek papyri from Petra describe small, scattered farms owned by wealthy landlords and worked by tenants (Parker 1999: 142). Hirschfeld (1977: 36-37, 43-45, 49, 50, 56) suggested that isolated farmsteads were typical in most parts of Palestine, on the edge of the Judean desert, and in the Negev highlands during Late Antiquity, but acknowledges that some farms were larger than others and that one person could own an entire village. Hirschfeld (1977: 33-34) generalized on the basis of Palestine that large agricultural estates were more typical of the western Roman Empire, while an economy based on small farms and villages was typical of the Roman East, but the evidence for Byzantine Arabia and Syria indicate that, at least for the Levant.

Large estates with diversified production that tended toward self-sufficiency and were worked by chattel labor are also found in Sasanian territory during Late Antiquity (Morony 1981). In late Sasanian Iraq:

the characteristic unit of landownership was the self-sufficient village estate with its surrounding farmland and servile tenant labor, which operated at the same time as an agricultural, administrative, and tax unit. A composite profile of such an estate is impressive. It could contain grain fields, vineyards, and groves of date-palms, its own mills and buildings, water sources, and cattle as well as enjoying control over right-of-way. Such estates had been formed from the middle Sasanian period onward by the purchase of land for tax debts, land grants out of crown property, or the assignment of military fiefs. They were held by a landed aristocracy of absentee landlords who lived in towns, while agents or stewards managed their estates (Morony 1981: 166).

The organization of agrarian production around large estates continued to be typical during early Islamic times (Cahen 1965),³ but this needs to be confirmed locally. For instance, 70 of the 80 sites in the Balikh Valley in the early Islamic period are very small and seem to represent newly founded farmsteads (Bartl 1996: 335-36).

³ According to Oleg Grabar (1973: 30-32) the Muslims transformed the countryside of Syria and Palestine into large estates.

The situation is similar in Egypt. According to Banaji (2001: 136-37, 153), the large estate (*oikos*) emerged as an institution in Egypt during the fifth century using water-raising machinery to expand the area under perennial irrigation. By the sixth century the leading *oikoi* all over Egypt were allocating the share of the tax burden for their districts to themselves. Banaji regards the *oikoi* as the embodiment of the Byzantine aristocratic elite and as marking the culmination of social evolution in Egypt during Late Antiquity. Liebeschuetz (2001: 181-98) considers this view of the Egyptian countryside dominated by large estates as plausible but over generalized.⁴

According to Banaji (2001: 152-55, 214), neither the allocation system nor the *oikoi* themselves survived the Muslim conquest in Egypt. The administration became much more centralized, and, although landowners connected to the pagarchy survived, the pagarchs themselves became mere servants of the central government. For Banaji (2001: 153),

the survival and continued workings of the classic institutions of Byzantine Egypt cannot be the sign of a simple continuity—major changes did occur, if only because the most powerful group of the Byzantine period had now completely disappeared, and it is likely that the pagarchy itself no longer had the same meaning for the big landowners as it had, clearly, in the final century before the conquest.

In this respect, at least, there would have been a chronological economic boundary in Egypt during the seventh century coinciding with the Muslim conquest.

THE MONETIZATION OF THE ECONOMY

In addition to the emergence and spread of large estates, it has also been argued that the direct involvement of the late Roman government in production and distribution undermined or even prevented the operation of a market economy. For example, according to Liebeschuetz (1972: 88),

the Roman government . . . organized so large a part of the distribution of the products of the empire, that there was no scope beside it for the growth of large privately run enterprises, whether concerned with distribution of goods or the lending of money.

Garnsey and Whittaker make an effort to qualify the extent to which government control might have stifled private enterprise or reduced the volume of trade. They admit that from the time of Diocletian state factories produced weapons and other military equipment, that taxes collected in kind were redistributed

⁴ Liebeschuetz's criticism is not directed against Banaji but at Jean Gascou (1985).

to officials in kind, that from the time of Constantine the government required citizens to provide services it needed, and that this would have restricted the market economy. However, they argue again that the interests of the government were fiscal, and that it was only involved in controlling some industries and professions, not all of them, that a market economy existed outside of the government supply system where landlords could sell their surplus, and even that government regulation strengthened the occupational corporations (*collegia*).

Garnsey and Whittaker (1998: 313, 316-17, 321-22, 324, 333, 336-37) conclude that more merchants, craftsmen, and people who were engaged in transport worked for the government and with much less freedom than previously. Government regulation of commerce and industry became more visible, and this did have an effect on the economy, but the effect was not as great as had been claimed. The fact that landlords had surplus produce to sell and cash to spend guaranteed the operation of a market economy at some level. Although a large proportion of exchanges were in kind, the increasing monetization of the economy during Late Antiquity goes back to the fourth century, when large numbers of copper coins are evidence for an active market economy, even in the countryside (Garnsey and Whittaker 1998: 313; Whittaker and Garnsey 1998: 307), and officials converted their rations into cash by selling them (Liebeschuetz 1972: 88). The revisionist views of Whittaker and Garnsey apply primarily to the fourth century, appear to be somewhat apologetic, and may, in some cases, generalize from conditions in North Africa.

However, Banaji (2001: 218-19) argues that there was substantial private investment during Late Antiquity in flax, fish, silk, olive oil, glass-making, pottery, brickyards, smithing, dying, money-lending, banking, maritime commerce, the grain trade, fruit production, and the wine industry. Banaji also picks up on the monetization of the economy where Whittaker and Garnsey leave off. The commutation of payments in kind into cash, which Banaji calls a “fiscalized commercialism,” was widespread by the fifth century. By the end of the sixth century the revenue system was almost completely monetized. The evidence from the size of coin hoards refutes the notion of a monetary recession during the seventh century in the eastern Mediterranean, Eastern Europe, North Africa, or Sicily. This only happened in the west (Banaji 2001: 45, 48, 55-67, 80-81, 83). Liebeschuetz (2001: 45) agrees that “the money economy was not in retreat in the sixth century; if anything the reverse was true,” and that “the papyrus evidence leaves no doubt that the economy was as highly monetized around AD 600 as it ever had been.” The high percentage of the coins found in the shops at Sardis that come from the last forty years of their existence (Maurice to Heraclius) indicates that “plenty of money was changing hands in return for pots, glassware, textiles, or dye-stuffs right up to the destruction of the city” (Liebeschuetz

2001: 44). Nevertheless, Liebeschuetz (2001: 408-9) points out that the monetary evidence is discontinuous geographically since it is based on coin hoards and archaeology. Foss (1997: 204) also argues that the continuous sequence of coins from the early sixth century through the early ninth century at the village of Dehes in the limestone hills of northern Syria shows a continuing, active money economy.

It is worth noting at this point that a parallel monetization was taking place at the same time in the territory of the Sasanian empire, especially in the sixth and early seventh centuries (Sears 1999). Banaji (2001: 166) even points out that the monetization of the economy, at least in Egypt, continued under the Muslims through the eighth century. He further argues that the payment of agricultural taxes in cash from the late fifth century onward encouraged production for the market and that this may have intensified under the Muslims (Banaji 2001: 88, 158). The Sasanian tax reform in the sixth century may have had a similar effect. Thus, in terms of the monetization of the economy and the commercialization of agriculture, there is no boundary at all between Late Antiquity and the early Islamic world but a trend that begins in one and continues into the other.

AGRICULTURE AND SETTLEMENT PATTERNS

Indeed, Banaji (2001: vii) finds it “impossible to conceive of the period between Diocletian’s overhaul of Roman imperial structures and the Islamic expansion as one of persistent decay, let alone dramatic decline.” There was a remarkable expansion of the rural economy from the fourth to the sixth century that continued well into the seventh century (Banaji 2001: 16-18, 22). This is partly based on archaeological evidence for settlement patterns during Late Antiquity, mainly from North Africa, Egypt, and the Levant; the prosperity of these regions was not matched in Italy or Iberia (Banaji 2001: 214-15). What the number and density of settlements can tell us about economic history is a major issue to which we shall have to return, but for the time being it is sufficient to note that there is a simplistic tendency to relate rural settlement patterns to agricultural production: more people means more produce. For Banaji (2001: 19-20) settlement densities increased sharply through most of Late Antiquity, with Palestine reaching a demographic maximum in the late sixth to early seventh century. Viticulture flourished there, in the Hawran, along the Euphrates, and in the Fayyum and Mareotic regions of Egypt. The papyri make it clear that there was no agrarian depression in seventh-century Egypt, when paid labor and irrigation were widespread (Banaji 2001: 170). Thus Banaji (2001: 215) thinks that population was increasing for most of Late Antiquity,

enabling landlords to employ a “surplus” rural population. Ward-Perkins (2000a: 321-33; 2000b: 357) is certain that the fifth and sixth centuries saw the greatest extent of settlement, the highest population density, and the largest population in Greece, the Near East (presumably Syria-Palestine), and Egypt. In the eastern provinces of the late Roman Empire the spread and intensification of settlement and population growth are clear and undisputed until at least 500. Rural settlement in North Africa was most dense and extensive during the third and fourth centuries followed by a gradual, steady decline in wealth and the abandonment of settlements through the fifth and sixth centuries.

In Upper Mesopotamia, T. J. Wilkinson (1990: vol. 1, 117, 123, 126, 128) speaks of a “massive expansion of settlement and agriculture” from the fourth to the sixth centuries in the vicinity of Kurban Höyük on the left bank of the Euphrates River northwest of Urfa (Edessa), when the number of sites peaked as well as the total area under cultivation (determined by sherd scatters in the fields for manuring). The agrarian production there, probably of wheat, barley and lentils, appears to have been self-sufficient. This region was abandoned in the late sixth century or during the seventh century. The only two sites out of seventeen that remained occupied after the seventh century were located on the periphery of the formerly cultivated area. But this pattern does not obtain in the Balikh Valley, where the settlement density of the Early Byzantine period (fourth to mid-seventh century) nearly doubled in the Early Islamic period (mid-eighth to early tenth century). Bartl (1996: 335-37) notes the anomaly and relates it to late Marwani development projects in the early eighth century and to the ‘Abbasi development of ar-Raqqa at the confluence of the Balikh and the Euphrates rivers at the turn of the ninth century. We shall return to this case below. The pattern of abandonment from the Byzantine to the early Islamic period does seem to occur in the Upper Khabur region, but its degree may be overstated. Out of a sample of sixty-four sites in this region, occupation density dropped from thirty-nine in the Roman-Parthian period (first three centuries CE) to twenty-nine in the Byzantine-Sasanian period (fifth to seventh centuries), fourteen of which are questionable. Most of these sites were along the road from Nisibis to Resaina and in the Khabur valley. Only fourteen sites were identified for the Early Islamic period, except for Nisibis all in the Khabur valley. But ten of the questionable Byzantine-Sasanian sites were not identified in the Early Islamic period while four were. There were also two new sites in the Khabur valley in the Early Islamic period. The remaining eight had all been occupied in the previous period (Lyonnet 1996: 352-53, 361, figs. 5, 6). Thus, if one subtracts the questionable Byzantine-Sasanian sites from the total of twenty-nine, that leaves fifteen secure Byzantine-Sasanian sites or possibly nineteen, based on the supposition that the four questionable sites identified in the Early Islamic period are

more likely to have been occupied during the previous period. On this basis there might not have been much change in occupation density from the Byzantine-Sasanian period to the Early Islamic period in the Upper Khabur region and virtually no change in the settlement pattern. The main abandonment would have been between the third and fifth centuries. Morrisson and Sodini (2002: 176, 187) suggest that populations had reached their maximum in Anatolia, Syria-Palestine, the Transjordan, and Egypt at about the middle of the sixth century.⁵ For Foss (1995: 220; 1997: 259-61), Syria was overpopulated by the sixth century. The period of growth for several hundred villages in the limestone hills of northern Syria lasted from about 300 to 550. The agricultural economy was based on the mixed production of olives, grapes, wheat, beans, vegetables, sheep, cattle, and poultry. Although expansion ceased after the mid-sixth century, this region was not deserted, but seems to have gone into a long, slow decline. The village of Dehes, the only site to have been excavated, remained inhabited until the ninth century (Foss 1995: 219-20; 1997: 199-200, 202-203; Liebeschuetz 2001: 71-72; Morrisson and Sodini 2002: 176). There appears to have been a brief spurt of development on the 'Ala plateau east of Hama in the late sixth century (until 605; see Foss 1997: 233-34), and an expansion of settlement on the western end of Cyprus that lasted from the fifth to the mid-sixth century and elsewhere on Cyprus into the seventh century (Morrisson and Sodini 2002: 176).⁶ A pattern similar to northern Syria occurs on the Mediterranean coast of Anatolia, where settlement and prosperity seem to have peaked in Cilicia and Lycia during the sixth century with a parallel decline by the eighth or ninth century (Foss 1995: 222). Otherwise, Hama and its vicinity prospered into the Islamic period (Foss 1997: 236-37).

The provinces of Arabia and Palestine were faring even better at the end of Late Antiquity and beyond. The economy of the Hawran was based on grain, vineyards, fruit trees, and bovine cattle, and Sartre (1987: 158-60) sees evidence of real prosperity in the building activity that lasted from 550 to 635. Agricultural production in the Hawran and the Jebel Druze was either expanding (Kennedy 1985a: 175, 178) or culminating (Foss 1997: 245-46) during the sixth century.⁷ According to Watson (2001: 463-64, 670, 481-82), the population reached its maximum size and land use was most intensive during the Byzantine

⁵ For Anatolia and Egypt see also Liebeschuetz (2001: 43, 73).

⁶ This may have had something to do with the resettlement of captives from Arzanene on Cyprus by Maurice in the late sixth century. See John of Ephesus, *Historia ecclesiasticae pars tertia* 6. 15, 27.

⁷ Both Foss and Kennedy include olive production in the Hawran, but Villeneuve (1985: 125) could find little evidence.

period. On the western plateau wheat and barley dominated the plains in the north, vineyards, and olive, fig, and almond trees in the central plateau and wadis, with irrigated farming to the east. To the south extensive farmlands around Faynan (Phaino) supplied that copper-mining community, while the papyrus scrolls from Petra attest to vineyards, orchards, and fields in its vicinity between 528 and 582. Settlement and agriculture expanded onto marginal land at the expense of pastureland and contributed to erosion. Johns (1994: 5-6, 13) dates a general agrarian boom in the Hesban region and the Karak plateau of modern Jordan from the mid-fifth to the mid-seventh century, followed by retraction from the mid-seventh century.⁸

By all accounts, Palestine was flourishing in the fifth and sixth centuries, in some places extending into the seventh and eighth centuries, with a mixed agrarian economy that produced grain, grapes, olives, and vegetables, as well as raising sheep and cattle (Hirschfeld, 1997: 41, 45-6, 58, 60-1; Liebeschuetz 2001: 299; Trombley 1997: 201-2; Tsafir and Foerster 1997: 99-100; Walmsley 1996: 129-30, 148-9, 151). There are hundreds of sites in the Judean and Negev deserts where grain and wine were produced and sheep raised from the Byzantine period until the middle of the eighth century (Foss 1995: 230-31; Hirschfeld 1997: 35, 51).

According to Morrisson and Sodini (2002: 181) in the eastern part of the late Roman Empire during the sixth century:

there seems to have been significant exploitation of agricultural potential, with an active rural population that worked the land with consummate skill refined by ancestral knowledge of nature and by the realization that the unceasing maintenance of these fields (clearing, terracing, rock removal, irrigation) was the precondition of the community's survival and the source of its well-being. The peasant population was distributed either in farmsteads or (perhaps more often) in villages at the center of agricultural lands whose limits were demarcated with care, as is evident in northern Syria and Jordan.

EXPORTS AND SPECIALIZATION

Although the Late Antique economy was predominantly rural and engaged in the self-sufficient production of grain, olive oil, wine, and domestic animals for local consumption, some regions produced a surplus that was exported in connection with government and commercial distribution networks.⁹ There is a difference of emphasis at least between Ward-Perkins (2000b: 352-53), who speaks

⁸ If this determination was based on the so-called "Byzantine" sherds, then the retraction might have begun later than the mid-seventh century.

⁹ For instance, North African olive oil and pottery piggybacked on the annona shipping system. See Fentress and Perkins (1987: 209) and Wickham (1994: 92-3, 96).

of the eastern provinces being at the center of thriving local and regional exchange networks and engaging in the long-distance exchange of agricultural produce, and Morrisson and Sodini (2002: 196), who regard the production and trade of wine and oil to have been fundamental to the sixth-century economy throughout the late Roman Empire but deny that there was a high degree of specialization or long-distance export. This is, of course, a matter of relative difference and subjective judgment, but there is not adequate evidence to measure the degree of specialization. Nevertheless, wine was exported from Palestine and Egypt, grain from Egypt, and grain and olive oil from North Africa. Arthur and Oren (1998: 210) argue that the continuing production of amphorae is evidence for the production of agricultural surpluses in North Africa and the eastern Mediterranean well into the seventh century.

The export of Syrian olive oil is debated. For Tchalenko (1953-58, vol. 1: 435-37), the prosperity of the villages in the limestone hills of northern Syria depended on the export of olive oil and lasted until maritime commerce in the Mediterranean was disrupted by the Arab conquest. Ward-Perkins (2000b: 374-75) still has these villages exporting their olive oil in Antiochene amphorae in the fifth and sixth centuries. But both Foss (1995: 219-220) and Liebeschuetz (2001: 71) regard the north Syrian cities as providing a sufficient market for the olive oil of these villages and minimize its export. It was the collapse of the urban markets for their oil that ruined these villages from the late sixth century onward. The long term effects of the repeated uprooting or withering of olive trees due to violent winds or freezing weather in 600, 607, 647, 669, before 684, 713, 714, 750, and 773 is also likely to have reduced the production of olive oil (it took five years for new trees to bear) and to have contributed to the impoverishment of these villages (Morony 2000).

The sixth century did see a growth of wine production in the hinterland of Gaza and Ascalon and the export of wine in amphorae made at Gaza (Banaji 2001: 19; McCormick 2001: 35, 37, 93)¹⁰ throughout the Mediterranean (Gutiérrez Lloret 1998: 166; Pentz 1992: 33, 35; Walmsley 1996: 149) and as far as Qana on the south coast of Arabia (Sedov 1992: 113).¹¹ For Egypt, Banaji (2001: 18) says that an "intense boom which stimulated investments in wine growing throughout the Byzantine period lasted well beyond the sixth century." A huge winery on the southern shore of Lake Mareotis was active during the sixth century, while villages in Middle Egypt exported wine to Constantinople as late as the second quarter of the seventh century (Banaji 2001: 18-19, 159).

¹⁰ For an industrial estate near Ascalon, see Hirschfeld (1997: 46).

¹¹ The author thanks Christian Robin for bringing this article to his attention.

Egypt also produced a surplus of grain during Late Antiquity. Some 160,000 metric tons of grain were shipped from Alexandria to Constantinople every year under Justinian (McCormick 2001: 97).¹² In 578 Justin II sent many thousands of bushels of grain by ship from Egypt to Rome to relieve a famine (Paul the Deacon vol. 3: 108). It was the occupation of Alexandria by the Persians in 617 that put an end to the public distribution of bread at Constantinople in 618 (McCormick 2001: 110). This does not mean that Egypt ceased to produce a grain surplus under the Persians; we just do not know what happened to it until the Muslims redirected it to the Hijaz after their conquest of Egypt in the 640s (Mayerson 1996: 125).

There are also two significant examples of the production of pottery for commercial export in the Mediterranean world during Late Antiquity. One, of course, is African Red Slip ware that was distributed throughout the Mediterranean from the third century to the sixth century, with a narrowing range of types and increasingly poor quality from the fifth century onward, and smaller quantities by the end of the sixth century (McCormick 2001: 53-60; Morrisson and Sodini 2002: 210; Ward-Perkins 2000b: 357-8, 371; Wickham 1994: 90-1, 94-5). It disappeared sometime in the seventh century in what McCormick (2001: 59, 102) calls “the decline of a major craft industry.” The other example is the fine Phocaean Red Slip tableware produced from the fourth to the early sixth centuries and distributed throughout the Aegean and the eastern Mediterranean (Ward-Perkins 2000b: 360). But Ward-Perkins’ attempt to use pottery as a paradigm for specialization and exchange within other industries during Late Antiquity has an apologetic ring to it, and it should be noted that both Phocaean and African Red Slip ware disappeared shortly before or at about the same time as the rise of Islam. At the same time it is probably worth pointing out the existence of a contemporary distribution pattern of Indian red polished ware from Gujerat found in the Sasanian level at Siraf (Whitehouse 1985: 344; 1979: 869).¹³

In the most populated and economically active parts of the Late Roman Empire—Anatolia, Syria-Palestine, and Egypt—cities were maintained and the urban economy continued to prosper until the middle of the sixth century. Shop-lined streets are evidence for both artisanal production and local commerce (Morrisson and Sodini 2002: 174, 187). In this part of the empire, Late Antiquity also saw the development of large towns around the cities as secondary

¹² Given the export of this surplus, it could simply not be true, as Liebeschuetz (2001: 73) has it, that Egypt had as many people as its agriculture could feed by 500.

¹³ Red polished ware occurs in Gujarat in strata dated as late as the fifth century. See Orton (1991: 46).

centers of production and exchange that partly took the place of cities in the regional economy and foreshadowed the networks of “medieval” cities (Morrisson and Sodini 2002: 179-81).¹⁴

Commerce remained active but on a smaller scale through most of the sixth century around the eastern Mediterranean where grain, oil, wine, dried legumes and salt pork went from south to north. A secondary route went from Constantinople to Italy and North Africa (McCormick 2001: 102; Morrisson and Sodini 2002: 206-10). In the western Mediterranean, North African exports predominated over those from the east (McCormick 2001: 102; Morrisson and Sodini 2002: 211). During the second half of the sixth century and through the seventh century, commercial exchange became increasingly regional and local production tended to be more self-sufficient throughout the Mediterranean, but especially in the west (Gutiérrez Lloret 1998: 167, 169, 184; Liebeschuetz 2001: 45-46, 280, 305; Wickham 1998: 287-88). Nevertheless, Mediterranean commerce appears to have been handled by a trade diaspora of “Syrians” from the fifth to the eighth centuries (Curtin 1984: 103-4).

URBAN CHANGE

Against this background, there is somewhat of a consensus that a retraction of the economy occurred from about the middle of the sixth century. Morrisson and Sodini (2002: 189) see evidence for the impoverishment of cities in urban degradation throughout the Mediterranean world that began in the sixth century. City walls went unrepaired and graves occurred inside cities; sewers and aqueducts were abandoned; and baths and public buildings were used for dwellings or workshops. In Anatolia, city life ended and towns were ruralized, shops were subdivided, and shops and porticoes were turned into dwellings in the sixth and seventh centuries (Morrisson and Sodini 2002: 190-91). They speak of demographic stagnation in Byzantine North Africa during the seventh century, when economic activity and exchange slowed down, private houses and shops began to appear in the *fora*, and agricultural presses began to appear inside towns (Morrisson and Sodini 2002: 173).¹⁵ But the appearance of oil presses in urban sites in North Africa in the early seventh century would seem to indicate an expansion of the industry rather than the opposite, as would the amphorae-producing kilns that occupied the space of the Justinianic buildings in the two

¹⁴ Whittaker and Garnsey (1998: 308) note that rural markets and fairs on the large estates were more common in the Late Roman Empire.

¹⁵ See also Cameron (1989: 180-1) and Pentz (1992: 37).

harbors area of Carthage in about 600 (Cameron 1989: 182; Roskams 1996: 166).¹⁶

In Syria-Palestine, shops and houses encroached onto city streets in the seventh century, workshops and pottery kilns were established in the center of towns, and the level of towns rose, suggesting that waste was being deposited rather than hauled away. Morrisson and Sodini (2002: 193) do note, however, in the case of Syria-Palestine that the workshops that sprang up in formerly public buildings and spaces are evidence of an increase in manufacturing.¹⁷ Garnsey and Whittaker (1998: 326-27) agree that the turning point in the prosperity of cities in the eastern Roman empire was the middle of the sixth century or even later. Although urban changes such as these tend to be associated with economic retraction, the debate over post-Roman urban change involves much more than just the economy. Everyone agrees that change occurred, but there is some disagreement over when it happened and what caused it.

Maritime commerce retreated to the eastern Mediterranean, became regional, and decreased in volume in the second half of the sixth century (Morrisson and Sodini 2002: 189). By the seventh century the port of Antioch at Seleucea had been abandoned (Kennedy 1985a: 155), imports at Caesarea in Palestine had shrunk to nearly nothing (Liebeschuetz 2001: 59), and there was a significant reduction in the numbers of Gaza jars and presumably their contents at Ostrakine and Constantinople, and in Palestine, North Africa, and Anatolia (Oked 1996: 168-69). However, the presence of a "surprising quantity" of North African amphorae in a church at Ostrakine on the Mediterranean coast of Sinai, which burned between 668 and 685 (Arthur and Oren, 1998: 203, 205, 210-11; Oked 1996: 166), when Ostrakine was in Muslim territory but before Carthage had fallen to them, suggests the existence of commerce across the political frontier in the seventh century as well as the continuing production and export of the contents of the amphorae in and from North Africa.

Ward-Perkins (2000b: 379) dates a massive general decline in urban prosperity in the west to the fifth and sixth centuries, and sees a qualitative change in the Late Antique economy by the end of the sixth century, when entire sectors of specialization and exchange disappeared (Ward-Perkins 2000b: 361). He also sees more evidence for decline in Aegean Greece and in Anatolia during the seventh century than in Syria-Palestine, such as the disappearance of rural

¹⁶ For the export of North African olive oil up to the early Islamic period, see also Mattingly (1988: 56).

¹⁷ They suggest that these changes might have begun during the Persian occupation but were certainly in place by the Umayyad period.

settlements in Greece, the contraction of settlements in towns, and fewer coins, churches, and dateable buildings (Ward-Perkins 2000b: 360). He finds it impossible to determine whether the prosperity of Syria-Palestine began to decline at about the time of the first outbreak of bubonic plague (541-3) or lasted until the end of the sixth century or into the early seventh century. But assuming that the economy of Syria-Palestine may have declined by about 650 compared to about 550, he makes two important points. One is that there was no uniform pattern of decline in Syria,¹⁸ and the other is that compared to the rest of the Roman world the economy of Syria-Palestine was still exceptionally sophisticated (Ward-Perkins 2000b: 354). It should also be noted that Ward-Perkins identified a geographical boundary between the increasingly ruralized economy of Anatolia by the seventh century and the relatively commercialized and urbanized surviving Late Antique economy of Syria-Palestine (one should also include Egypt). McCormick (2001: 62) and Morrisson and Sodini (2002: 193) also recognize this boundary by contrasting urban degradation in the territory that remained (or became) Byzantine with urban survival or growth in the territories occupied by the Muslim Arabs.

Thus, the important economic boundary that emerges is the one between Anatolia and Syria, not the political frontier between the Late Roman and Sasanian empires. With the Muslim Arab conquest of Syria this boundary also became the political frontier. Liebeschuetz (2002: 414) wonders whether:

social and economic trends which were to become evident after the Arab conquest had begun in a quiet way before the establishment of the Arab empire, and that an economic region encompassing Arabia, Syria, and Mesopotamia had been developing well before the Arab conquest created the political one?

Ward-Perkins (1996: 11) is more blunt: urban change in Syria at the end of Late Antiquity was a positive development that liberated cities from aristocratic Roman urban formalism and made it possible for Islamic commercial enterprise to thrive.¹⁹

¹⁸ Northern Syria (Antioch, Apamea, and the limestone hills) and the cities along the Syrian coast seem to have experienced greater urban and economic retraction than regions further south. See Foss (1997: 192, 206-7, 209, 223-6, 267), Kennedy (1985b: 5-6, 12, 14, 18-19; 1985a: 153-4, 162, 177-81), and Liebeschuetz (2001: 56, 59, 61-2, 297-8, 302-5, 313). For urban change in Scythopolis (Baysan), see Tsafirir and Foerster (1997: 118, 125-6, 140-41).

¹⁹ Pentz (1992: 41) is similar: less government control meant that the crafts became more entrepreneurial and more responsive to market forces and that building was freer and more private.

DEMOGRAPHY

In contrast to the views of Late Antique economy discussed thus far and the rather late dating of its demise to the sixth and seventh centuries, McCormick (2001: 29-30, 60-61, 103, 111-12, 114) regards the overall long term economic trend in the late Roman world from the third to the seventh century as having been downward in terms of reduced agricultural and industrial production and a reduction in the volume of the maritime transport of goods. He sees two processes as basic to the disappearance of the Roman economy: decreasing evidence for settlement and for North African and eastern goods going to western Europe. The first is the most problematic part of his argument because he assumes there is a connection between the size of settlements, the size of the population, the amount of land farmed, and the volume of production.²⁰ That is, settlement patterns can be used in a simplistic way to measure the volume of agrarian production. Thus contracting settlement patterns reveal a net decline in population from the second to the seventh century in spite of local variations. Population decline in turn reveals impoverishment that began in the northwest and reached the southern and eastern Mediterranean centuries later. Contra Whittaker, McCormick (2001: 30-34) has “no doubt that wide acres of farmland were going out of production, and so depriving the tax office of its take” or that attempts to restrict the mobility of agrarian labor are evidence of the shortage of such labor in some places.²¹ McCormick (2001: 42-53) also identifies a reduction in mining and metal production during Late Antiquity. It is clear that he is working from a Carolingian *telos*, and it is tempting to suggest that the glaring difference between Banaji’s and McCormick’s views of Late Antique economic history is the difference between Late Antique Egypt and Merovingian Gaul.

The first issue, then, is whether or not economic retraction occurred during Late Antiquity and, if so, where and when. For those who believe that retraction had occurred by the sixth or seventh centuries, the next questions are why did it occur at all and why then. In 1985 Kennedy (1985a: 181-83) surveyed and critiqued a list of possible causes for urban change in Syria: earthquakes, invasions, climatic change, a decline in trade and the decline in population due to the bubonic plague that broke out in 542. He concluded that “The loss of

²⁰ For a critique of the use of field surveys as evidence for decline in rural settlement, commerce, and population, see Liebeschuetz (2001: 388-90).

²¹ Ward-Perkins (2000b: 350) seems to agree that from the fifth to the seventh century intensive, specialized economic activity gradually receded more and more to the south and east.

population was the underlying cause which meant that earthquakes and invasions were so damaging" (Kennedy 1985a: 183), but he also argued that "demographic decline alone cannot account for all the changes" in the urban built environment in Syria (Kennedy 1985b: 18). Four years later Jean Durlat (1989: 107-119) undermined the usefulness of plague as an explanation by minimizing its demographic effects. Subsequently Foss (1997) also played down the plague of 542 as a cause of demographic decline in Syria (1997: 260), while for Wickham (1998) general depopulation was "unlikely to have led on its own to systematic crisis now that the theories of demographic catastrophe popular a decade ago seem to have been abandoned" (1998: 291).²² However, in 1997, Trombley (1997: 158, 168, 182, 184) argued for the cumulative effect of deportations by the Persians in depopulating the North Syrian countryside in the sixth and seventh centuries.

More recently Ward-Perkins (2000b: 381-87) reviewed, analyzed and critiqued the possible causes for economic decline at the end of Late Antiquity. These include heavy taxation, the end of government spending, the failure of some regions to compete commercially, and disruptive warfare, but he tends to minimize the role of climatic or environmental change specifically with respect to post-Roman alluviation of Mediterranean streambeds²³ without really dealing with the issue of climatic change. This is significant because interest in the effect of "natural" factors on the economy of Late Antiquity has revived recently. Liebeschuetz (2001: 53-54, 71, 295, 392, 409-10) reviews a series of possible natural causes for a demographic and economic downturn in the sixth century and is convinced that "Plague, earthquakes, and Persian raids, often involving deportation of large parts of the urban population provide a perfectly adequate explanation" for the decline of Antioch and of other cities in northern Syria after about 550.²⁴ Keys (1999) has identified a huge volcanic eruption in Indonesia in 535 as responsible for global changes that mark the difference between the ancient and modern worlds. There is also a revival of interest in the first bubonic plague pandemic and its effects from the mid-sixth to the mid-eighth century, and it has been pointed out that there were an unusually large number of harsh climatic events—cold winters, droughts, etc.—that caused famines during the sixth century (Koder 1996: 275).²⁵ For those who are uncomfortable with monocausal explanations of any sort, it might be best to see matters in

²² This appears to be an oblique reference to Durlat.

²³ The latter appears to have been aimed at Claudio Vita-Finzi (1969).

²⁴ Parker (1999: 145, 170) attributes economic and demographic retraction in Palestine from the mid-sixth century to a combination of plague, insecurity, Samaritan revolts, oppressive taxes, and overpopulation. The author thanks Walter Ward for this article.

²⁵ This was based on the work of Ioannes Telelis.

terms of a combination of factors that happened to be contemporary, and Ward-Perkins (2000b: 382) argues that it is easier to understand the decline of the Late Antique economy if commerce, regional specialization, and government redistribution are seen as constituting an interconnected system. In the end, however, he seems to be saying that there was a connection between economic decline and the reduction in the size of the population, because that meant there were fewer producers and consumers (Ward-Perkins 2000b: 388-89).

So why were there fewer people? It does seem evident that destructive earthquakes, floods, recurring epidemics of bubonic plague and other diseases, famines (caused by drought, freezing weather, gale force winds, and locusts), and massacres would have reduced populations in much of western Asia and the eastern Mediterranean considerably, while the wholesale deportation of farmers and artisans by victorious armies would have reduced production in certain places but increased it in other places. Such events appear to have converged from the sixth to the eighth centuries. In an economic system such as that of Late Antiquity without economies of scale or labor saving devices to increase efficiency, gross demography becomes relevant. However, in theoretical terms at least, it can also be argued, as it has been for plague, that reducing the size of the population also reduces the pressure on resources. In a retracting economy the survivors might be better off (Koder, 1996: 277; Liebeschuetz 2001: 54, 397; Ward-Perkins 2000b: 389).

SASANIAN ECONOMY

Thus far the focus of discussion has been mainly on the Late Antique economy of the Mediterranean world and within the political boundaries of the Late Roman Empire. Ward-Perkins (2000b: 362-63) remarks that matters look different outside those boundaries, but he looks no further east than Armenia. The roots of the economic system that we identify as “Islamic” lie not in Syria and Egypt but in Sasanian territory. It is significant that economic development in the Sasanian milieu in the sixth century was exactly contemporary with economic retraction in the Mediterranean world. The two sectors of economic production that stand out in this respect are irrigated agriculture and mining.

The Sasanian period saw an expansion of riverine irrigated agriculture in Sistan, Khuzistan, and Iraq, and the beginning of a revival of *falaj*-irrigation with underground channels on the coastal plain of Uman. The irrigation systems in Sistan and Khuzistan go back to the early and middle Sasanian periods (Christensen 1993: 107-12, 227, 234), but the greatest expansion of irrigated agriculture in Sasanian Iraq (Adams 1981: 104-5) and its development in Sasanian Uman (Morony 2001-2002: 30-31) belong to the sixth century. In all four

regions, irrigated agriculture not only survived well into the Islamic period but it continued to be developed, peaking in Sistan, Iraq, and Uman in the ninth century, and spreading to the Syrian Euphrates by the early eighth century, where the development projects under the caliph, Hishām, probably explain the increase in settlement density in the Balikh Valley.²⁶

The mining of gold, silver, copper, and some iron in the Arabian Peninsula revived during the sixth century with the introduction of new technologies to extract subterranean sulfide ores. In central Arabia and Yaman this was done by Zoroastrian Persian miners, who survived as a mining population there until the ninth century. Indeed, there is more evidence for Sasanian mining in Arabia than there is in Iran. Otherwise, the development of gold and copper mines along the Arabian Shield in western Arabia in the sixth century had nothing to do with the Sasanians. This was the beginning of what can only be called a mining boom that lasted in central and western Arabia and in Yaman until the ninth century and in Uman until the tenth century. It is worth noting that the late Sasanian economic interaction with Arabia involved an incipient development of agriculture and copper mining in Uman and of silver mining and a textile industry in Yaman, an economic expansion that continued into early Islamic times (Morony 2001-2002: 25-27).

MERCHANT DIASPORAS

Late Sasanian and Arab-Sasanian coins found in China also seem to indicate increasing economic exchange between Iran and China from the end of the Sasanian period that extended into early Islamic times. Whether or not these coins are evidence of commerce is less important than the emergence of diasporic trading networks based on place of origin and/or religion that were centered in late Sasanian territory. Parallel to the network of "Syrian" merchants in the Mediterranean is that of the Sogdians in western China and the Persians in the Indian Ocean from the fourth century onwards. By the sixth century, Christian Persians belonging to the Church of the East should be included, and this trend continued into the Islamic period with the formation and spread of an Ibadi Muslim merchant diaspora from al-Basra to Uman and North Africa in the eighth century, and the Sirafi merchant colonies and Radanite Jewish merchants in the ninth and tenth centuries. This phenomenon thus was developing during the last

²⁶ For Iraq, see Morony (1984). For the development projects on the Syrian Euphrates under the caliph Hishām, see Chabot (1963, vol. 2: 490; vol. 4: 457; 1895: 23-24, text 26) and Harrak (1999: 160-61).

two centuries of Late Antiquity and spread mainly from Iraq and the Gulf region in early Islamic times (Morony forthcoming).

By the sixth century, Sasanian shipping dominated maritime commerce in the western part of the Indian Ocean (Daryaee 1999: 135-8, 144-5; 2003: 8-14, 16; Tampoe 1989: 2, 119). In an oft-cited passage, Procopius of Caesarea (I, xx, 9, 11-12) complains about how Persian merchants prevented the Ethiopians from buying silk directly from the Indians in South Asia in 529. It was likewise in the early sixth century that the Egyptian, probably Nestorian, monk, named Cosmas Indicopleustes (XI. 15), described Sri Lanka as an entrepot for Indian Ocean trade, visited by ships from India, Persia, and Ethiopia, that forwarded the silk, aloes, cloves, and sandalwood from China and elsewhere in the East to Western India, Persia, South Arabia, and Ethiopia.²⁷ Cosmas (XI. 14, 22) also noted that Persian Christians had settled on Sri Lanka, and that horses were being exported from Persia to Sri Lanka, where they were sold to the ruler, who exempted the importers from paying customs dues.²⁸ The Sasanian occupation of Yaman in the 570s put them in control of all but one of the ports on the South Arabian coast where the arrival of ships from India with the north-east monsoon from October through March coincided with the circuit of annual Arabian fairs held at these ports from January through March. By the late sixth or early seventh century the overseas trade from India to South Arabia had been integrated with the overland trade across the Arabian Peninsula (Morony 2001-2002: 33, 35-36).

What effect did this have on shipping in the Red Sea and on commerce between the Late Roman Mediterranean and South Asia? Did the Sasanian occupation of Yaman reduce Indian trade through the Red Sea to Egypt? Whitehouse (1991: 217) has argued that the Sasanians closed the Indian Ocean to Red Sea shipping from the 570s, while Christides (1994: 34) would not go so far but acknowledges that from that point onward Byzantine shipping in the Red Sea and Indian Ocean would have been reduced greatly. Before going any further it should be said that, apart from circumstances specific to the Red Sea, Late Roman shipping there might be expected to conform to the trends in sixth- and seventh-century shipping in the Mediterranean noted above. For instance, the disappearance of Gaza-type amphorae at Qana after the early seventh century (Sedov 1992: 113-14),²⁹ along with the abandonment of the site itself, can be

²⁷ Elsewhere we are told that aromatics, pepper, raw silk and precious pearls were exported from India in the early sixth century. See "Martyrium Sancti Arethae et sociorum," I. 2. The author thanks Irfan Shahid for providing him with a xeroxed copy of this text.

²⁸ Cosmas does not say who these horse traders were.

²⁹ Archaeology indicates that Qana underwent urban change similar to Mediterranean cities from the fifth to the seventh century, while it was being replaced by Aden.

related to the reduction in production of Gaza-type amphorae during the seventh century that has already been noted. Otherwise, one important difference is that since Late Roman commerce in the Red Sea could not have piggybacked on the annona transports, it would not have been affected by the end of the annona system. There are at least two issues that need to be differentiated. One has to do with the question of sailing by Late Roman merchants in their own ships or those of others to South Asia; the other involves the transport of goods between South Asia and the Late Roman Empire possibly by middlemen.

Judging by the material evidence there was much less commerce between the Roman world and South Asia at the end of Late Antiquity than there had been before. The height of Roman trade with India had been during the first century. Most Roman coins found in India belong to that period, there are substantial numbers from the second and third centuries, but from the fourth century onward the numbers are small (Begley 1991: 6; Carson 1980: 20). That may be because the focus of trade had shifted to Sri Lanka where thousands of fourth- and fifth-century Roman copper and bronze coins of Constantine I through Marcian from the central and eastern Mediterranean have been found near ports on the west side of the island (Bopearachchi 1992: 112-13, 115). Late Roman coins are very rare in South India and Ceylon after the fifth century; they end in India with Justin I (518-27) or Justinian (527-65)³⁰ and on Sri Lanka there is a break between one coin of Anastasius (491-518) and two or three coins of Heraclius I together with Heraclius Constantine (Codrington 1924: 44-45). This is hardly evidence for commerce after the fifth century. Bopearachchi's (1992: 114) explanation that Roman coins do not survive because the silver and gold of coins were used to make jewelry is not convincing because one supposes that that would have happened also during the first century, the period from which most coins survive. Deo's (1991: 45) use of a hoard of forty-three Late Roman coins from Theodosius II (402-50) to Justinian (527-65) struck at Constantinople and found at Akkialur in Karnataka, South India, as evidence that commerce lasted until the sixth century amounts to special pleading. Thus, both Morrisson (1995: 83; cf. Morrisson and Sodini 2002: 211) and Mango (1996: 156) are misleading in their implication that coins provide continuous evidence of Late Roman commerce with South Asia from the middle of the fifth century to the time of Heraclius.

What did happen was that the Red Sea-Indian Ocean trade was dominated by middlemen—Himyarite South Arabians and Axumite Ethiopians—from the fourth century onward (Bopearachchi 1992: 117; Kobishchanov 1979: 172; Mayerson

³⁰ See Carson (1980: 20, 22-3), Deo, (1991: 40-5), and Turner (1989: 48).

1996: 122, 139-40; Sidebotham 1991: 34.). In the fifth and early sixth centuries, the Axumite port of Adulis was a major entrepot where Late Roman merchants acquired Indian and Chinese goods (Kobishchanov 1979:188; Mango 1996: 153; Munro-Hay 1982: 116). According to Cosmas (II.54), Adulis was frequented by merchants who came from Alexandria and the Gulf of Aila.³¹ These merchants may not have gone much further, or if they did, traveled together with people from Adulis, as an Egyptian merchant named Sopatros, who used to go to Sri Lanka on business, did sometime before 512 (Cosmas XI. 17).³² Regional products were also exported: frankincense from the African Horn to Adulis, South Arabia, India, and Persia (Cosmas II. 49), emeralds from the Blemmyes of Upper Egypt to the White Huns in northern India (Cosmas XI. 21), and the larger African elephant tusks to India, Persia, South Arabia, and the Roman Empire (Cosmas XI. 23). Although no Axumite coins have been found in India, Sri Lanka, Somalia, or East Africa (Kobishchanov 1979: 184),³³ some idea of the nature of the traffic at Adulis can be gained from the account in the “Martyrium Sancti Arethae” according to which the Ethiopians commandeered sixty ships from Roman, Persian and Ethiopian commercial ports (*emporon*) and collected them at Gabaza, the harbor of Adulis, in ca. 525: nine from India, seven from the Farasan Islands, fifteen from Aila, twenty from Clysmā, two from Berenike, and seven from Iotabe.³⁴ It is worth noting that all but nine were from somewhere in the Red Sea and that the majority (forty-two out of sixty) were from the northern end of the Red Sea (Aila, Clysmā, and Iotabe). Kobishchanov (1979: 78) argues that the presence of only two ships from Berenike means that Berenike had been replaced by Clysmā by the early sixth century and that the overland route from Berenike on the Red Sea to the Nile Valley was no longer used. Surface pottery sherds indicate that the site of Berenike was occupied from the fifth to the seventh centuries, but not necessarily as a port (Sidebotham 1991: 21).

Evidence of Late Roman commerce in the Red Sea consists of Byzantine bronze weights found at Axum, bronze scales and weights found at Adulis (Kobishchanov 1979: 173), and amphorae from Aqaba (Aila) found all over the Red Sea region and at Axum (Morrisson and Sodini 2002: 212; Parker 1999:

³¹ Procopius (I. 19. 14) also has Roman ships sailing from Aila into the Red Sea/Arabian Gulf in the sixth century.

³² Sopatros had been dead for 35 years when Cosmas was writing Book XI in 547.

³³ According to Morrisson and Sodini (2002: 212), Axumite coins have been found in Jerusalem.

³⁴ “Martyrium Sancti Arethae et sociorum,” VII. 29. It should be noted that no Persian ports are actually mentioned.

163). Sidebotham (1991: 18) associates the fifth- to seventh-century fort at Abu Sha'ar on the Red Sea coast of Egypt with a revival of commerce. The presence of an alabarch at Antinoopolis on the Nile in 568 suggests that the overland route from there to the Red Sea might still have been active (Johnson and West 1949: 229). In about 570, a pilgrim from Piacenza recorded shipping from India that brought aromatics to Aila and that ships from India sailed to Clysma, where he was given green nuts (pistachios?) from India (Wilkinson 2002: 147-48).³⁵ It must be said that the trade at Clysma does not seem very important; only nuts are mentioned. What is more important is that these references occur just before the Sasanian occupation of Yaman in the 570s and that there are no subsequent references to Clysma until the Arab conquest of Egypt in the 640s (Mayerson 1996: 125). There is, however, a reference to Aila toward the end of the sixth century, when a man from Aila offered a monk named Joseph three silver coins at Enaton in Egypt, so Joseph would pray for his ship, which he had loaded and sent to Ethiopia (Regnault 1970: 191).³⁶ But the sixth- to early seventh-century African Red Slip ware found at Aila (Parker 1996: 245) is unlikely to have come from the direction of the Red Sea. Mango (1996: 141, 163) contends that Byzantine maritime commerce continued in the Red Sea at least until the Sasanians occupied Yaman and argues that Persian control of the routes or ports may have made Byzantine trade with the East more expensive rather than shutting it off, but she gives no evidence. Such evidence might consist of the precious scented wood from Arabia that John the Almoner sent from Egypt to Gregory the Great (most likely in the second decade of the seventh century), but we do not know how John acquired it (Monks 1953: 358).

CONCLUSIONS

At least six trends have been identified here that have their roots in Late Antiquity and had long trajectories into the Islamic period, such that they help to define it: (1) the development and spread of large estates with tenant labor, (2) the monetization of the economy, (3) the development and spread of irrigated agriculture, (4) the revival of mining, (5) the formation and spread of merchant diasporas and (6) the domination of Indian Ocean commerce by Persian shipping and the eclipse of Byzantine shipping in the Red Sea by the end of the sixth century.

³⁵ Simon (1989: 34, 131) explains "India" here as South Arabia and/or Abyssinia.

³⁶ Since this is said to have happened in Egypt, it is not clear whether the ship sailed to Ethiopia from Aila or from Egypt.

Both irrigated agriculture and mining were labor intensive, and in order to expand production they were labor hungry. Sasanian territories were visited by the same kinds of disasters that caused mass mortality in the Mediterranean world during the sixth and early seventh centuries. In the crunch between the expansion of a labor-intensive economy and a reduction in the labor force, labor had to be imported. Persian miners migrated to Arabia and continued to do so until the ninth century; there is no evidence that they were forced. Otherwise Sasanian economic behavior toward the late Roman Empire is best described as predatory, taking the form of massive looting and the forced deportation of farmers and artisans, particularly during the sixth and early seventh centuries, when the Sasanian economy was expanding. This, too, continued under the Muslims with the importation of war captives and slaves (Morony forthcoming).

The Sasanians helped to destroy the Late Antique economy in Anatolia and to undermine it in Syria. It is as though one economy literally arose at the expense of the other. It is surely significant, and perhaps no accident, that it was Syria, Palestine, Egypt, and North Africa, where the Late Antique economy survived in its most sophisticated form, that were incorporated into the early Islamic empire and economy rather than Anatolia. It is also worth suggesting that the Sasanian campaigns under Khusraw II and the early Islamic conquests were the political and military expressions of an expanding economy.

Whether an economy is expanding or contracting is a matter of the volume and/or value of production and exchange, which are impossible to measure for the period under discussion here. Our conclusions can only be impressionistic. But issues of economic production go beyond expansion and contraction and should consider production for self-sufficient use versus production for exchange, changes in crops and kinds of animals, the nature of manufactured products, and local specialization in the production of particular goods for export. It is not possible to go into these issues here except to note that, compared with Late Antiquity, production in the early Islamic economy was more profoundly commercialized and specialized.³⁷

But there was probably not a single unified Late Antique economy. The impression that there was is based on imperial legislation that was intended to apply throughout the entire late Roman Empire. However, uniform models are useful when making comparisons, and in this case allow one to speak of a retracting Late Antique economy that was chronologically overlapped by an expanding Sasanian/proto-Islamic economy in the sixth and early seventh centuries.

³⁷ For an idea of the degree of specialization in production in the ninth century, see Morony (1993: 702-5).

This would be a teeter-totter view of economic history, with one region or sector of the economy going up while another goes down. An alternative model would be of one region or sector of the Late Antique economy overtaking another or others, but not all of them, and going on to become the dominant economy in the early Islamic period.

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